Perception Physical AI Solutions

PERCEPTION-PHYSICAL-AI-HOLOSCAN-SENSOR-BRIDGE

NEW

Active

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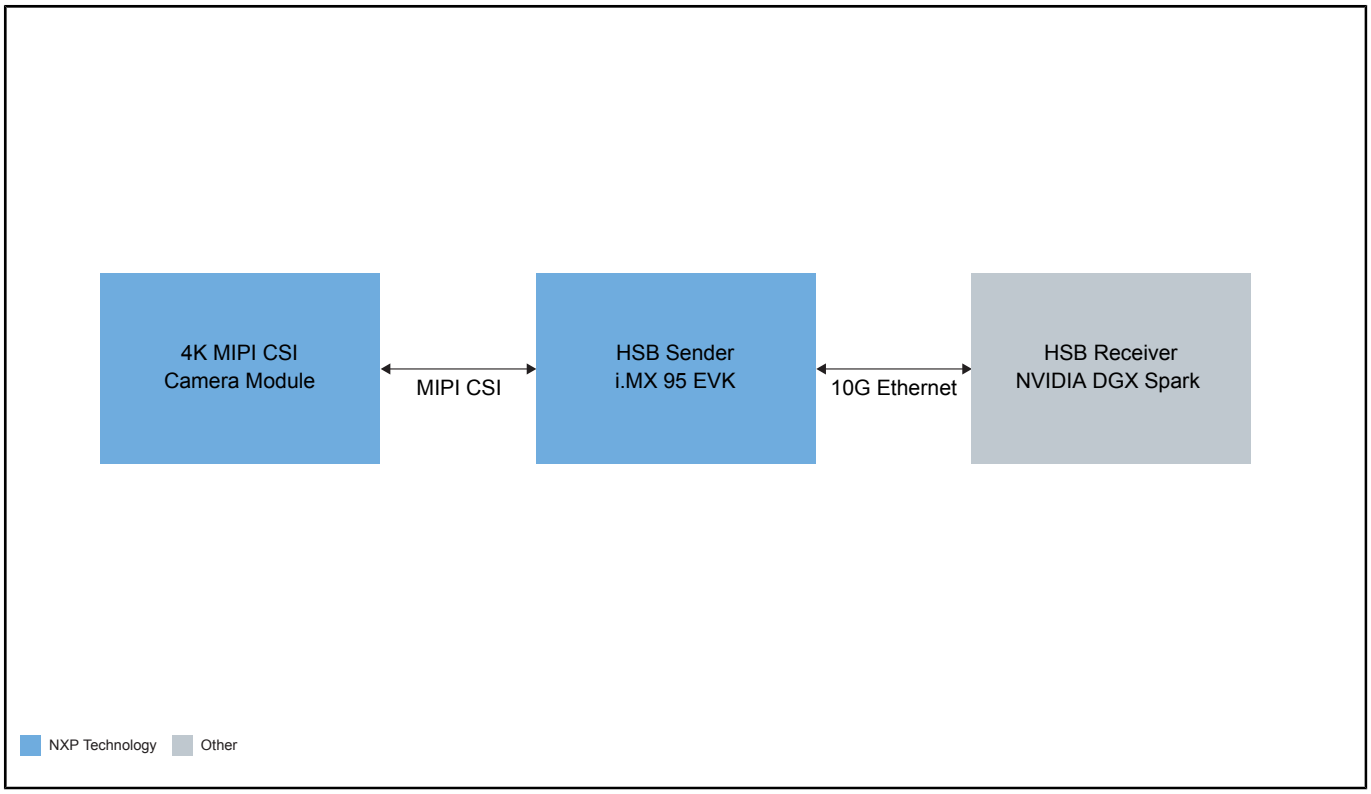
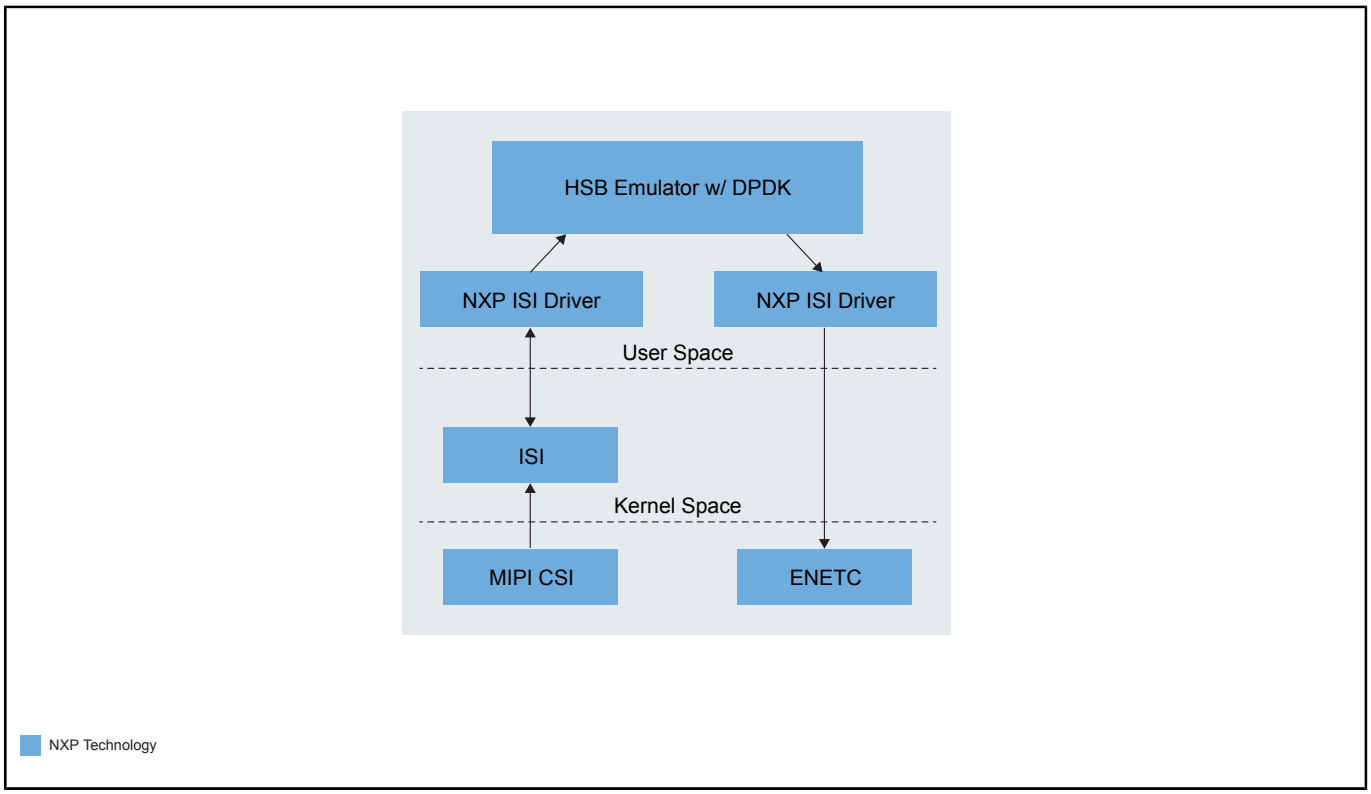
NXP i.MX processors act as distributed edge#perception nodes within humanoid robots, complementing NVIDIA’s centralized compute by offloading time#critical sensor preprocessing and control tasks. Using NVIDIA Holoscan Sensor Bridge (HSB), i.MX devices stream synchronized, preconditioned sensor data—such as RAW and RGB video, IMU fusion and tactile inputs—into the robot’s GPU#centric pipeline with low latency.

This edge#to#GPU architecture reduces bandwidth demands on the central computer, enables deterministic real#time sensor processing at the edge and allows the NVIDIA platform to focus on higher#level functions such as whole#body motion planning, multimodal large#model inference and control optimization. The result is a scalable, modular sensing#to#compute pipeline designed for complex humanoid robotics systems.

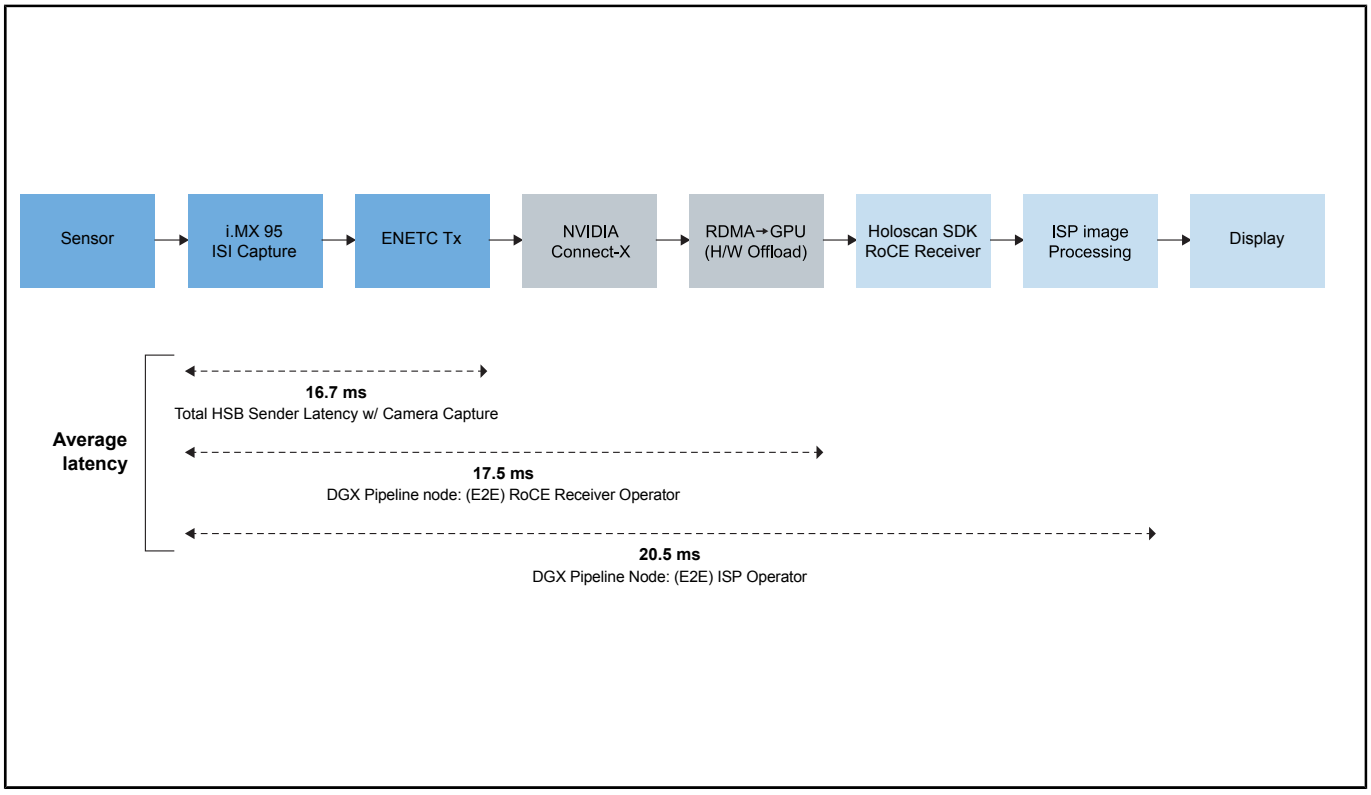
NXP HSB Hardware System Block Diagram



NXP HSB Software Implementation Block Diagram



Processing Pipeline Block Diagram



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Note: The information on this document is subject to change without notice.